

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

REMARKS

Applicant respectfully traverses the rejection under 35 U.S.C. § 112, second paragraph, and also the following four (4) prior art rejections.

1. Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Satou et al. (JP '150 or US '273).
2. Claims 1, 5, 6 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Atokawa '399 taken in conjunction with Takamine '940.
3. Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Atokawa '399 in view of Takamine '940 and further in view of Uriu '015.
4. Claims 2, 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Atokawa '399 and Takamine '940 and further in view of Ishida et al (JP '738) cited in Applicant's IDS.

[1] Amendments to claims

In view of the Examiner's rejection of claim 7 set forth in Paragraphs 3 and 7, of claim 2 set forth in Paragraph 5, of claims 1, 5, 6 and 8 set forth in Paragraph 6, and of claims 2, 3 and 4 set forth in Paragraph 8 of the Office Action, Applicant amends claims 1, 2, 3 and 4 not only by inserting the phrase "comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of said antenna and a receiving circuit and usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands, said balanced-unbalanced multiband filter module" after the introductory language, "A balanced-unbalanced multiband filter module", in line 1 thereof,

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

but also by replacing the original characterizing clause, "whereby a high-frequency signal input into an unbalanced port of said module is output from the first and second balanced ports, and a high-frequency signal input into said first and second balanced ports is output from an unbalanced port of said module", with the characterizing clause,

whereby a high-frequency signal of the first or second communication system input into said unbalanced port of said module is output to said low-noise amplifier from the first and second balanced ports, and a high-frequency signal of the first or second communication system input into said first and second balanced ports is output to said high-frequency amplifier from an unbalanced port of said module

to make the respective amended claims 1-4, on which claims 5 and 6 are dependent.

Applicant also amends claim 1 by inserting the recitation

being disposed on a transmitting side and/or a receiving side of said high-frequency circuit,

on said transmitting side, an unbalanced port of said balanced-unbalanced multiband filter module being connected to a high-frequency amplifier connected to a transmitting port of said high-frequency antenna switch,

on said receiving side, an unbalanced port of said balanced-unbalanced multiband filter module being connected to a receiving port of said high-frequency antenna switch, and

said first and second balanced ports of said module being connected to the balanced ports of said filter module connected to a low-noise amplifier,

between lines 18 and 19 thereof to present a currently amended claim 1, on which claims 5-6 and 8 are dependent.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

Applicant amends claim 7 by dividing the dependency thereof into two groups, one being dependent from the amended claims 1 and 3 having a high frequency switch and the other being dependent from amended claims 2 and 4, as new claim 9, having a phase shifter, and by replacing the recitation "transmission lines constituting said phase shifters and said high-frequency switches being formed by said electrode patterns, and switching elements constituting said high-frequency switches and said balanced-unbalanced bandpass filters being mounted onto said laminate" in the last 5 lines of the characterizing clause of claim 7 with the recitation --not only said balanced-unbalanced bandpass filters being mounted onto a main surface of said laminate of pluralities of dielectric layers but also switching elements being mounted onto said main surface of said laminate, and terminal electrodes for the first and second ports being formed on one side of a bottom surface of said laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of said bottom surface thereof to make the amended claim 7, together with by replacing that of the characterizing clause of claim 7 with the recitation --not only said balanced-unbalanced bandpass filters being mounted onto a main surface of said laminate of pluralities of dielectric layers but also transmission lines constituting said phase shifters being formed by said electrode patterns, and terminal electrodes for the first and second ports being formed on one side of a bottom surface of said laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of said bottom surface thereof to make the new claim 9, thereby overcoming the Examiner's rejections of these claims.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

In the amended claims 1-4, the recitation, "A balanced-unbalanced multiband filter module comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of said antenna and a receiving circuit and usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands," finds support at page 4, lines 3-5 and 7-12; page 30, lines 18-21; and Fig. 15, of the specification and drawings.

The recitation, "whereby a high-frequency signal of the first or second communication system input into an unbalanced port of said module is output to said low-noise amplifier from the first and second balanced ports, and a high-frequency signal of the first or second communication system input into said first and second balanced ports is output to said high-frequency amplifier from an unbalanced port of said module" finds support at page 30, lines 14-17 and 21-25; and Fig. 15, of the specification and drawings.

The recitation in the amended claim 1, "being disposed on a transmitting side and/or a receiving side of said high-frequency circuit,

on said transmitting side, an unbalanced port of said balanced-unbalanced multiband filter module being connected to a high-frequency amplifier connected to a transmitting port of said high-frequency antenna switch,

on said receiving side, an unbalanced port of said balanced-unbalanced multiband filter module being connected to a receiving port of said high-frequency antenna switch, and

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

said first and second balanced ports of said module being connected to the balanced ports of said filter module connected to a low-noise amplifier", finds support at page 30, lines 18-25; page 31, lines 8-10; and Fig. 15, of the specification.

In the amended claim 7, the recitation, "wherein it is constituted by a laminate of pluralities of dielectric layers having electrode patterns, not only said balanced-unbalanced bandpass filters being mounted onto a main surface of said laminate of pluralities of dielectric layers but also a switching element being mounted onto said main surface of said laminate, and terminal electrodes for the first and second ports being formed on one side of a bottom surface of said laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of said bottom surface thereof", and also in new claim 9, the recitation, "wherein it is constituted by a laminate of pluralities of dielectric layers having electrode patterns, not only said balanced-unbalanced bandpass filters being mounted onto a main surface of said laminate of pluralities of dielectric layers but also transmission lines constituting said phase shifters being formed by said electrode patterns, and terminal electrodes for the first and second ports being formed on one side of a bottom surface of said laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of said bottom surface thereof", find support in Fig. 11(a) and Fig. 11(b) and green sheets "Top Surface" and "Bottom Surface" of Fig. 14 in view of page 14, lines 16-18; page 11, line 28 to page 6; and page 24, lines 13-19, of the specification.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

[2] Rejection of claim 7 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

In view of the Examiner's opinion set forth in Paragraph 7 of the Office Action, claim 7 has been divided into two groups one reciting features of switches set forth in claims 1 and 3 as the amended claim 7 and the other reciting features of phase shifters set forth in claims 2 and 4 as new claim 9, as mentioned in the previous section [1].

Accordingly, Applicant believes that the Examiner's rejection of claim 7 has been overcome by the above amendments to claim 7 and by new claim 9.

[3] Rejection of claims 1, 5, 6 and 8 under 35 U.S.C. § 103(a) based on Atokawa US Patent 6,483,399 taken in combination with Takamine US Patent 6,713,940

With respect to the Examiner's rejection of these claims, Applicant disagrees with the Examiner's opinion set forth in Paragraph 6 of the Office Action for the reasons discussed in detail below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

US Patent 6,483,399 (Atokawa)

Atokawa discloses a duplexer comprising a transmission filter constituted of a variable frequency filter in which PIN diodes are connected to dielectric resonators disposed between an antenna terminal and a transmission terminal and a switching circuit a switching circuit for selecting one of the plurality of surface acoustic wave filters disposed between the antenna terminal and a plurality of receiving terminals.

The duplexer disclosed in Atokawa is applied to only one transmit-receive system, such as Japanese cdma-One mobile phone system, in which the transmission band of the system is between 887 and 925 MHz and the reception band thereof is between 832 and 870 MHz, and Fig. 4 and 5 of Atokawa disclose a reception filter comprising a plurality of surface acoustic wave filters with mutually different frequency pass bands which divide the reception band of a communication system into a plurality of bands and pass signals in one of the divided frequency bands of the cdma-One mobile phone system reception band and switching circuits for selecting one of the plurality of the surface acoustic wave filters as such (see column 6, line 60 to column 78, line 18, and Figs. 4 and 5, of Atokawa).

US Patent 6,713,940 (Takamine)

Takamine discloses a surface acoustic wave device including a plurality of surface acoustic wave filters having different center frequencies contained in a package, where one of the input terminal and the output terminal of at least one of the plurality of surface acoustic wave filters is a balanced terminal and the other is an unbalanced terminal, and Fig. 17 of Takamine

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

discloses a schematic block diagram showing the construction of a communications device incorporating a surface acoustic wave filter (see Abstract; claim 1 and Fig. 17, of Takamine).

Major novel and unobvious features of the amended claim 1 are in the balanced-unbalanced multiband filter module:

(1) not only comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit and being usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands,

(2) but also comprising three high-frequency switches each comprising a switching element, and two balanced-unbalanced bandpass filters having different transmitting frequency bands,

(3) being disposed on a transmitting side and/or a receiving side of said high-frequency circuit, where on the transmitting side, an unbalanced port of the balanced-unbalanced multiband filter module is connected to a high-frequency amplifier connected to a transmitting port of an high-frequency antenna switch and on the receiving side, an unbalanced port of the balanced-unbalanced multiband filter module is connected to a receiving port of the high-frequency antenna switch as well as the first and second balanced ports of the module are connected to the balanced ports of the filter module connected to a low-noise amplifier, and

(4) the first to third high-frequency switches in the module being switched depending on a passing high-frequency signal, whereby a high-frequency signal of the first or second communication system input into the unbalanced port of the module is output to the low-noise

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

amplifier from the first and second balanced ports, and a high-frequency signal of the first or second communication system input into the first and second balanced ports is output to the high-frequency amplifier from an unbalanced port of the module.

In contrast to the above, the duplexer of Atokawa does not possess a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit, and is not usable in a multiband mobile phone for pluralities of communications systems using close frequency bands, and is not provided with two of balanced-unbalanced bandpass filters having an unbalanced port and the first and second balanced ports, and also is not provided with two of high-frequency switches capable of connecting the first and second balanced ports of each balanced-unbalanced bandpass filters to the first and second ports of the balanced-unbalanced multiband filter module, as required by these claims.

Further, Atokawa does not teach, on the transmitting side of the high-frequency circuit, the connection of the unbalanced port of the balanced-unbalanced multiband filter module to the high-frequency amplifier connected to the transmitting port of the high-frequency antenna switch and, on the receiving side thereof, not only the connection of the unbalanced port of the balanced-unbalanced multiband filter module to the receiving port of the high-frequency antenna switch but also the connection of the first port and the second port of the filter module to the balanced ports of the low noise amplifier, as required by these claims.

Both Fig. 4 and Fig. 5 of Atokawa disclose a single reception terminal having a switching circuit disposed on the output side of a surface acoustic wave filter device, but the single

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

reception terminal thereof is not a common terminal for the pluralities of communications systems.

Also, Takamine discloses a surface acoustic wave device including a plurality of surface acoustic wave filters having different center frequencies contained in a package, where one of the input terminal and the output terminal of at least one of the plurality of surface acoustic wave filters is a balanced terminal and the other is an unbalanced terminal, and Fig. 17 of Takamine discloses a schematic block diagram showing the construction of a communications device incorporating a surface acoustic wave filter (see Abstract; and Fig. 17, of Takamine), and furthermore FIG. 16 of Takamine shows a surface acoustic wave device having two passbands constituted by connecting balanced output terminals of two surface acoustic wave filters in parallel (see column 10, lines 56-62 of Tamakine).

However, Takamine is silent about how to use the surface acoustic wave device in a multiband mobile phone for plural communications systems.

Therefore, those skilled in the art referring to Atokawa and Takamine, which **do not** teach or suggest the major novel and unobvious features (1) to (4), would never have been motivated at the time the present invention was made to incorporate the teaching of Takamine as to the surface acoustic wave device constituted by connecting balanced output terminals of two surface acoustic wave filters in parallel into that of Atokawa as to the surface acoustic wave filter to reach the technical idea of the present invention, i.e., to commonly use a balanced-unbalanced multiband filter module in two communication systems by connecting the balanced ports of the filter module to two of the balanced ports of unbalanced-balanced bandpass filters by two high-

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

frequency switches, so that, on the transmitting side, the unbalanced port of the filter module is connected to a high-frequency amplifier connected to a transmitting port of an high-frequency antenna switch, and on the receiving side, the unbalanced port of the filter module is connected to a receiving port of the high-frequency antenna switch, as well as the first and second balanced ports of the module are connected to the balanced ports of the filter module connected to a low-noise amplifier.

With respect to claims 5, 6, 10-14 and 8, their patentability is clear at least by virtue of their dependency from the amended claim 1.

[4] Rejection of claim 2 under 35 U.S.C. § 103(a) based on Satou et al. JP 2003-87150 taken alone

Applicant submits a certified English translation of Applicant's priority Japanese application No. 2002-310876 filed on October 25, 2002, which is earlier than the publication date of March 20, 2003 for JP 2003-87150 to Satou et al. Therefore, Satou is disqualified as a reference, and this rejection thereby is overcome.

[5] Rejection of claim 2, 3 and 4 under 35 U.S.C. § 103(a) based on Atokawa US Patent 6,483,399/Takamine US Patent 6,713,940 as explained in the claim 1 rejection above, and further in view of Ishida et al. JP 8-32138 (cited by Applicants)

With respect to the Examiner's rejection of these claims, Applicant disagrees with the Examiner's opinion, set forth in Paragraph 8 of the Office Action for the following reasons.

Based on the above discussions set forth in the previous section [3], it is clear that the amended claim 1 is patentable (non-obvious) over Atokawa and Takamine.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

The amended claim 2 calls for: "A balanced-unbalanced multiband filter module comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of said antenna and a receiving circuit and usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands, said balanced-unbalanced multiband filter module comprising two balanced-unbalanced bandpass filters having different transmitting frequency bands, and six phase shifters connected to said balanced-unbalanced bandpass filter,

 a first phase shifter comprising a first port connected to an unbalanced port of said module, and a second port connected to an unbalanced port of the first balanced-unbalanced bandpass filter;

 a second phase shifter comprising a first port connected to an unbalanced port of said module, and a second port connected to an unbalanced port of the second balanced-unbalanced bandpass filter;

 a third phase shifter comprising a first port connected to the first balanced port of the first balanced-unbalanced bandpass filter, and a second port connected to the first balanced port of said module;

 a fourth phase shifter comprising a first port connected to the second balanced port of the first balanced-unbalanced bandpass filter, and a second port connected to the second balanced port of said module;

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

a fifth phase shifter comprising a first port connected to the first balanced port of the second balanced-unbalanced bandpass filter, and a second port connected to the first balanced port of said module; and

a sixth phase shifter comprising a first port connected to the second balanced port of the second balanced-unbalanced bandpass filter, and a second port connected to the second balanced port of said module;

whereby a high-frequency signal of the first or second communication system input into an unbalanced port of said module is output to said low-noise amplifier from said first and second balanced ports, or a high-frequency signal input of the first or second communication system into said first and second balanced ports is output to said high-frequency amplifier from an unbalanced port of said module".

Major novel and unobvious features of the amended claim 2 are in the balanced-unbalanced multiband filter module:

(1) not only comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit and being usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands,

(2) but also comprising two balanced-unbalanced bandpass filters having different transmitting frequency bands, and six phase shifters connected to the balanced-unbalanced bandpass filter,

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

(3) whereby a high-frequency signal of the first or second communication system input into the unbalanced port of the module is output to the low-noise amplifier from the first and second balanced ports, and a high-frequency signal of the first or second communication system input into the first and second balanced ports is output to the high-frequency amplifier from an unbalanced port of the module.

Also, the amended claim 3 calls for: "A balanced-unbalanced multiband filter module comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of said antenna and a receiving circuit and usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands, said balanced-unbalanced multiband filter module comprising a high-frequency switch comprising switching element, two balanced-unbalanced bandpass filters having different transmitting frequency bands, and four phase shifters connected to said balanced-unbalanced bandpass filters,

said high-frequency switch comprising a first port connected to an unbalanced port of said module, a second port connected to an unbalanced port of the first balanced-unbalanced bandpass filter, and a third port connected to an unbalanced port of the second balanced-unbalanced bandpass filter;

a first phase shifter comprising a first port connected to the first balanced port of the first balanced-unbalanced bandpass filter, and the second port connected to the first balanced port of said module;

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

a second phase shifter comprising a first port connected to the second balanced port of the first balanced-unbalanced bandpass filter, and a second port connected to the second balanced port of said module;

a third phase shifter comprising a first port connected to the first balanced port of the second balanced-unbalanced bandpass filter, and a second port connected to the first balanced port of said module; and

a fourth phase shifter comprising a first port connected to the second balanced port of the second balanced-unbalanced bandpass filter, and a second port connected to the second balanced port of said module;

said first high-frequency switch being switched depending on a passing high-frequency signal, whereby a high-frequency signal input of the first or second communication system into an unbalanced port of said module is output to said low-noise amplifier from the first and second balanced ports, or a high-frequency signal of the first or second communication system input into said first and second balanced ports is output to said high-frequency amplifier from an unbalanced port of said module."

Major novel and unobvious features of the amended claim 3 are in the balanced-unbalanced multiband filter module:

(1) not only comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit and being usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands,

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

(2) but also comprising a high-frequency switch comprising switching element, two balanced-unbalanced bandpass filters having different transmitting frequency bands, and four phase shifters connected to the balanced-unbalanced bandpass filters, and

(3) the first high-frequency switch being switched depending on a passing high-frequency signal, whereby a high-frequency signal input of the first or second communication system into an unbalanced port of the module is output to the low-noise amplifier from the first and second balanced ports, or a high-frequency signal of the first or second communication system input into the first and second balanced ports is output to the high-frequency amplifier from an unbalanced port of the module.

Further, the amended claim 4 calls for: "A balanced-unbalanced multiband filter module comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of said antenna and a receiving circuit and usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands, said balanced-unbalanced multiband filter module comprising two high-frequency switches each comprising a switching element, two balanced-unbalanced bandpass filters having different transmitting frequency bands, and two phase shifters connected to said balanced-unbalanced bandpass filter,

a first phase shifter comprising a first port connected to an unbalanced port of said module, and a second port connected to an unbalanced port of the first balanced-unbalanced bandpass filter;

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

a second phase shifter comprising a first port connected to an unbalanced port of said module, and a second port connected to an unbalanced port of the second balanced-unbalanced bandpass filter;

a first high-frequency switch comprising a first port connected to the first balanced port of said module, a second port connected to the first balanced port of the first balanced-unbalanced bandpass filter, and a third port connected to the first balanced port of the second balanced-unbalanced bandpass filter;

a second high-frequency switch comprising a first port connected to the second balanced port of said module, a second port connected to the second balanced port of the first balanced-unbalanced bandpass filter, and a third port connected to the second balanced port of the second balanced-unbalanced bandpass filter;

said first and second high-frequency switches being switched depending on a passing high-frequency signal, whereby a high-frequency signal input of the first or second communication system into an unbalanced port of said module is output to said low-noise amplifier from the first and second balanced ports, or a high-frequency signal of the first or second communication system input into said first and second balanced ports is output to said high-frequency amplifier from an unbalanced port of said module."

Major novel and unobvious features of the amended claim 4 are in the balanced-unbalanced multiband filter module:

(1) not only comprising a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit and

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

being usable in a multiband mobile phone for the pluralities of communications systems using close frequency bands,

(2) but also comprising two high-frequency switches each comprising a switching element, two balanced-unbalanced bandpass filters having different transmitting frequency bands, and two phase shifters connected to the balanced-unbalanced bandpass filter, and

(3) the first and second high-frequency switches being switched depending on a passing high-frequency signal, whereby a high-frequency signal input of the first or second communication system into an unbalanced port of the module is output to the low-noise amplifier from the first and second balanced ports, or a high-frequency signal of the first or second communication system input into the first and second balanced ports is output to the high-frequency amplifier from an unbalanced port of the module.

In contrast to the invention of the amended claims 2, 3 and 4, Ishida provides a two-frequency band pass filter without the need for a control signal, with excellent entire insertion loss by converting input output impedance of 1st and 2nd band pass filters having a configuration such that a pair of impedance matching circuits (phase shifters 13, 14) connected to the input/output terminals of the 1st and 2nd bandpass filters (11, 12) are connected by common input/output terminals (15, 16) (see Abstract with Fig. 1 and paragraph [0008] of Ishida attached to the Action).

However, the two-frequency band pass filter of Ishida is not provided with a high-frequency antenna switch for switching the connection of an antenna to a transmitting circuit and the connection of the antenna and a receiving circuit, which is usable in a multiband mobile

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

phone for the pluralities of communications systems, nor two balanced-unbalanced bandpass filters having different transmitting frequency bands and six phase shifters connected thereto. Also, Ishida does not teach or suggest the features such that a high-frequency signal of the first or second communication system input into an unbalanced port is output to the low-noise amplifier from the first and second balanced ports, and a high-frequency signal of the first or second communication system input into the first and second balanced ports is output to the high-frequency amplifier from an unbalanced port.

Therefore, those skilled in the art, referring to Ishida, which does not teach or suggest the respective major distinguished features (1) to (3) of the amended claims 2, 3 and 4, would never have been motivated at the time the present invention was made to incorporate the teaching of Ishida into the combined teachings of Atokawa and Takamine to reach the invention of the respective amended independent claims 2, 3 and 4.

[6] Rejection of claim 7 under 35 U.S.C. § 103(a) based on Atokawa US Patent 6,483,399 and Takamine US Patent 6,713,940 as applied to claim 1, and further in view of Uriu et al. US Patent 6,606,015

With respect to the Examiner's rejection of this claim, Applicant disagrees with the Examiner's opinion set forth in Paragraph 7 of the Office Action, for the following reasons.

Based on the above discussions set forth in the previous section [3], it is clear that the amended claim 1 is patentable over Atokawa and Takamine.

The amended claim 7 calls for: "The balanced-unbalanced multiband filter module according to..., wherein it is constituted by a laminate of pluralities of dielectric layers having

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

electrode patterns, not only said balanced-unbalanced bandpass filters being mounted onto a main surface of said laminate of pluralities of dielectric layers but also switching elements being mounted onto said main surface of said laminate, and terminal electrodes for the first and second ports being formed on one side of a bottom surface of said laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of said bottom surface thereof."

Thus, novel and unobvious features of the amended claim 7 are that:

- (1) the balanced-unbalanced bandpass filters (20a, 20b) are mounted onto a main surface of the laminate (200) of pluralities of dielectric layers but also switching elements (DD1, DD2, etc.) are mounted onto the main surface the laminate (200), and
- (2) terminal electrodes for the first and second ports (P2-1, P2-2) are formed on one side of a bottom surface of the laminate (200) of pluralities of dielectric layers, and a terminal electrode for the unbalanced port (P1) is formed on an opposite side of the bottom surface thereof (see Figs. 11(a) and 11(b), of the specification).

Uriu truly teaches, for instance, in Fig. 6 that three SAW filters F1, F2, and F3 and four diodes P1 to P4, and capacitors C1, C6, and C8 respectively having a comparatively large capacity are mounted on the upper face of a laminated high-frequency switch 21 (see column 15, lines 33-43; and Fig. 6 of Uriu), but Uriu is silent as to terminal electrodes for the first and second ports being formed on one side of a bottom surface of the laminate of pluralities of dielectric layers and a terminal electrode for the unbalanced port being formed on an opposite side of the bottom surface thereof.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

Therefore, those skilled in the art referring to Uriu, which does not teach or suggest at least the major novel and unobvious feature (2) of the amended claim 7, would never have been motivated at the time the present invention was made to incorporate the teaching of Uriu into the combined teaching of Atokawa and Takamine to reach the invention of the amended independent claim 7.

[7] Information Disclosure Statement

In view of the Examiner's statement in Paragraph 1 of the Office Action, Applicant encloses a copy of the prior art document JP 51-7793.

JP 51-7793 discloses an input device for a VHF tuner comprising an intermediate frequency eliminating circuit to eliminate intermediate frequency from an input signal input from an input terminal, a bandpass filter circuit constituted by a low-frequency bandpass filter and a high-frequency bandpass filter connected in series to switching diodes SD₁, SD₂ connected to each other to form revered polarity, and a DC source (not shown) for switching the switching diodes alternatively.

However, JP 51-7793 does not teach or suggest any of the major novel and unobvious features (1) to (4) of the amended claim 1 as mentioned in the previous section [3].

Therefore, those skilled in the art referring to JP 51-7793 would not obviously reach the invention of the amended claim 1.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw all rejections and to find the application to be in condition for allowance with all of claims 1-14; however, if for any reason the Examiner feels that the application is not now in condition for

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 10/532,239

allowance, the Examiner is respectfully requested to **call the undersigned attorney** to discuss any unresolved issues and to expedite the disposition of the application.

Applicant files concurrently herewith an Excess Claim Fee Payment Letter (with fee) to cover the cost of the seventeen (17) excess claims generated by this Amendment.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this application, and any required fee for such extension is to be charged to Deposit Account No. 19-4880. The Commissioner is also authorized to charge any additional fees under 37 C.F.R. § 1.16 and/or § 1.17 necessary to keep this application pending in the Patent and Trademark Office or credit any overpayment to said Deposit Account No. 19-4880.

Respectfully submitted,

/John H. Mion/
John H. Mion
Registration No. 18,879

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
(202) 663-7901

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: December 29, 2006